

REMARKS

This Amendment is filed in response to the final Office Action dated August 12, 2008. For the following reasons this application should be allowed and the case passed to issue. No new matter is introduced by this Amendment. The amendment to claim 1 is supported by canceled claim 2 and the specification at paragraphs [0010] and [0022].

Claims 1, 4-9, 16-22, and 25 are pending in this application. Claims 1, 4-9, 16-22, and 25 have been rejected. Claim 1 has been amended in this response. Claims 2, 3, 10-15, 23, and 24 were previously canceled.

Claim Rejections Under 35 U.S.C. §§ 102/103

Claims 1, 3-6, 8, 9, 21, and 22 were rejected under 35 U.S.C. § 102(b) as anticipated by, or in the alternative, as obvious over Koike et al. (JP 07-220759). Initially, the Examiner interpreted “indefinite-shape particle” as “shapes having knots, bumps, or bulges based on the primary particles, that is for example, shapes like dendrite, grape clusters, or coral, unlike shapes that are spherical or egg-shaped,” as defined in the present specification. The Office Action asserted that Koike et al. disclose a coating film comprising a slurry of alumina powder and PVdF mixed in n-methyl pyrrolidone. The Office Action acknowledged that Koike et al. do not expressly disclose that the slurry comprises indefinite shape particles comprising dendrites, grape clusters, or coral, however, the Action explained that the presence of the binder mixed with the alumina would form indefinite shapes. The Action further maintained that the particles of Koike et al. would not be perfect spheres, thus bumps/irregularities on a single particle would be considered neck portions.

Claims 1, 4-6, 9, 21, and 22 were rejected under 35 U.S.C. § 102(b) as anticipated by, or in the alternative, as obvious over Delnick (JP 07-220759). The Office Action averred that

Delnick discloses a separator comprising a silica filler and a polymer binder. The separator comprises indefinite-shape particles comprising shapes of dendrites, grape clusters, or coral.

These rejections are traversed, and reconsideration and withdrawal thereof respectfully requested. Koike et al. and Delnick do not anticipate or render obvious the claimed secondary battery because Koike et al. and Delnick do not disclose or suggest the particulate filler substantially comprising a plurality of single crystalline particles having the shape of dendrites, grape clusters, or coral, the shape having a neck, wherein the **neck is formed between at least a pair of the single crystalline particles**, the neck comprising the **same** material as the single crystalline particles, as required by claim 1.

Claims 16-20 and 25 were rejected under 35 U.S.C. § 102(b) as anticipated by, or in the alternative, as obvious over Delnick (JP 07-220759) as evidenced by Walls et al. (*Fumed Silica-Based Composite Polymer Electrolytes: Synthesis, Rheology, and Electrochemistry*). The Office Action asserted that Walls et al. disclose that fumed silica consists of fused silica particles.

This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested. Delnick does not disclose or suggest a plurality of single crystalline particles that are diffusion bonded to each other and a neck formed between at least a pair of the single crystalline particles, the neck comprising the same material as the single crystalline particles, as required by claim 16. The Office Action alleged that Walls et al. supports its position. However, fumed silica does not comprise a plurality of single crystalline particles that are diffusion bonded to each other and a neck formed between at least a pair of the single crystalline particles, the neck comprising the same material as the single crystalline particles.

As taught by Day et al. (US 6,084,767) and Khan et al. (US 5,965,299) (attached) fumed silica is usually an agglomerate of spherical superfine particles produced when silane gas (SiH_4)

is oxidized or silicon in a gaseous state is oxidized in an arc flame. Day discloses (column 2, lines 42-45) that fumed silica is an agglomeration of small spheroids of about 12 to 13 nanometers in diameter. In other words, fumed silica is an agglomerate of spherical fine particles and has **no neck** formed between a pair of single crystal particles. Furthermore, it is evident in Khan et al. (Figs. 2 and 3) that fumed silica is not in the form of dendritic polycrystalline particles having a neck formed between a pair of single crystal particles. For example, in Fig. 3 of Khan et al., the particles are agglomerated through cross-linking of the functional groups (C=C) on the surface of the particles instead of necks.

The factual determination of lack of novelty under 35 U.S.C. § 102 requires the disclosure in a single reference of each element of a claimed invention. *Helifix Ltd. v. Blok-Lok Ltd.*, 208 F.3d 1339, 54 USPQ2d 1299 (Fed. Cir. 2000); *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1017 (Fed. Cir. 1994); *Hoover Group, Inc. v. Custom Metalcraft, Inc.*, 66 F.3d 399, 36 USPQ2d 1101 (Fed. Cir. 1995); *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992); *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051 (Fed. Cir. 1987). Because Koike et al. and Delnick do not disclose the particulate filler substantially comprising a plurality of single crystalline particles having the shape of dendrites, grape clusters, or coral, the shape having a neck, wherein the neck is formed between at least a pair of the single crystalline particles, the neck comprising the same material as the single crystalline particles, as required by claim 1; or a plurality of single crystalline particles that are diffusion bonded to each other and a neck formed between at least a pair of the single crystalline particles, the neck comprising the same material as the single crystalline particles, as required by claim 16, Koike et al. and Delnick do not anticipate claims 1 and 16.

Claims 1, 4, 8, and 9 are rejected under 35 U.S.C. § 103(a) as obvious over Takata et al. (US 6,638,988). The Office Action averred that Takata et al. teach a separator made of hydrotalcite and polypropylene. The Office Action noted that when organic fillers and a resin binder are kneaded in a kneader, the organic particles will naturally form indefinite shape particles comprising shapes of dendrites, grape clusters, or coral.

This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

Takata et al. do not render the claimed secondary battery obvious because Takata et al. do not suggest the particulate filler substantially comprising a plurality of single crystalline particles having the shape of dendrites, grape clusters, or coral, the shape having a neck, wherein the neck is formed neck formed between at least a pair of the single crystalline particles, the neck comprising the same material as the single crystalline particles, as required by claim 1.

Obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). There is no suggestion in Koike, Delnick, or Takata et al. to modify the Koike, Delnick, or Takata et al. batteries so that particulate filler substantially comprising a plurality of single crystalline particles having the shape of dendrites, grape clusters, or coral, the shape having a neck, wherein the neck is formed between at least a pair of the single crystalline particles, the neck comprising the same material as the single crystalline particles, as required by claim 1; or a plurality of single crystalline particles that are

diffusion bonded to each other and a neck formed between at least a pair of the single crystalline particles, the neck comprising the same material as the single crystalline particles, as required by claim 16.

The only teaching of the claimed secondary batteries is found in Applicants' disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must not be based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Claims 7 and 20 are rejected under 35 U.S.C. § 103(a) as obvious over Koike et al. in view of Waterhouse (US 4,363,856).

Claims 7 and 20 are rejected under 35 U.S.C. § 103(a) as obvious over Delnick in view of Waterhouse.

Claim 7 was rejected under 35 U.S.C. § 103(a) as obvious over Takata et al. in view of Waterhouse.

The Office Action acknowledged that Koike et al., Delnick, and Takata et al. do not disclose the resin binder comprises a polyacrylic acid derivative. The Office Action relied on the Waterhouse teaching of acrylic acid as a binder in a separator to conclude that it would have been obvious to substitute acrylic acid as a binder into the separators of Koike et al., Delnick, and Takata et al. because the selection of a known material based on the suitability for its intended use is obvious.

These rejections are traversed, and reconsideration and withdrawal thereof respectfully requested. The combination of Waterhouse with Koike et al., Delnick, or Takata et al. does not cure the deficiencies of Koike et al., Delnick, or Takata et al. because Waterhouse does not

Application No.: 10/555,657

suggest the neck is formed between at least a pair of the single crystalline particles, the neck comprising the same material as the single crystalline particles, as required by claims 1 and 16.

The dependent claims are allowable for at least the same reasons as the independent claims from which they depend, and further distinguish the claimed secondary batteries.

In view of the above amendments and remarks, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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